

BRIEFER ARTICLES.

Intelligence manifested by the swarm-spores of *Rhizophidium globosum* (A. Br.) Schroeter.—Some algæ, mostly species of *Spirogyra*, collected during November, at Ithaca, N. Y., were kept in the laboratory in open vessels by a cool window. During an examination of this material Dec. 18th, at 12:50 P. M., several nearly mature zoosporangia were observed attached to a thread of *Spirogyra*. The zoosporangia were full size and the contents coarsely granular. These were mounted in water in a VanTieghem cell and kept for observation of the escape of the zoospores. At 2 P. M. the protoplasm was segregating into isodiametric masses, the beginning of the zoospores.

There was no opportunity for farther examination of the preparation until 5:30 P. M. of the same day when fortunately the zoospores were escaping, about one-half having already made good their escape. One was at the moment squeezing itself through the rather small ostiolum at the apex of the zoosporangium, while the others were sailing about within it. Lying at the ostiolum, the body of the zoospore against the wall of the zoosporangium, the swarm cell begins amoeboid movements by throwing out the granular portion of the protoplasm at the end opposite from that which contains the hyaline sphere. Beside the extension of this part of the swarm cell the extruded portion also moves about over the inner surface of the wall in the effort to find the opening. When this is accomplished the flowing of the protoplasm continues, moving the body of the cell into the ostiolum. The anterior end of the amœboid cell having passed through the opening, enlarges, thus forming a constricted portion at the point of passage. At first the enlarged portions are of unequal size, the outer part being the smaller. This increases in size as the protoplasm flows through until the two parts are equal, when the cell is dumb bell shaped. Soon the outer portion is the larger and finally the entire mass of the protoplasm has flowed through, and the cell gradually assumes the oval form which it possessed before the attempt at passage. It remained poised at the ostiolum for a few moments as if getting itself in form again during the transition from the amœboid form to the swarm cell form, when suddenly it darted away.

When there were but few swarm cells in the sporangium it was easy to note the maneuvers by which the cell determined the location of the ostiolum. The swarm cell swung violently in irregular circles apparently usually keeping quite free from the walls of the zoosporangium.

Then it would come to rest at any point, there seeming not to be any choice in the location. Amoeboid movements would begin as described above for the cell which was first seen passing through the ostiolum. The extended process would feel about over the inner surface of the wall for the desired opening. After a few moments of vain search, if it did not happen to be located at the ostiolum, it would assume the rounded form again, dart violently away and repeat the circular gyrations. Frequently as it swept across the field it seemed to be of a somewhat flattened form, but this may have been due to slight amoeboid movement during the swarming, produced by the unequal pressure in the water encountered in turning suddenly at a different angle. Again it would come to rest and by amoeboid movements search for the ostiolum, and, failing, would again swarm violently about for another period. This would be kept up until the cell happened to rest close by the ostiolum when by amoeboid movements the search would be rewarded by finding the passage, when the issuance would be slowly made.—GEO. F. ATKINSON, *Cornell University, Ithaca, N. Y.*

The wild rice of Minnesota.—In a recent conversation with Dr. Elliott Coues, the well known naturalist, who had just returned from a visit to the head-waters of the Mississippi, some interesting information with regard to wild rice was brought out and in response to my request for some written notes on the subject Dr. Coues forwarded the appended account of the plant. When it is known that the 32,000 Ojibwa Indians depend upon the native wild rice of northern Minnesota as their staple article of vegetable food, the importance of this plant from an economic stand point is at once apparent, and these facts are suggestive of its further commercial utilization.—FREDERICK V. COVILLE, *Washington, D. C.*

WASHINGTON, D. C., Oct. 28, 1894.

Dear Sir:

Referring to our conversation of yesterday, on the wild rice or *Zizania aquatica*, I was somewhat surprised to be informed that there was anything not generally known about this plant in the observations which I made during my recent canoe-voyage to the sources of the Mississippi river. I comply with pleasure with your request for some notes on this subject.

Wild rice figures as a staple food-product in the earliest historical accounts we have of the various Indian tribes which then inhabited northern Wisconsin and Minnesota. One of these is in fact named from this circumstance. But it would be a great mistake to presume that the case is entirely different now. Rice continues to be a staple commodity among all the bands of Ojibwa Indians on the reservations in Minnesota, both for their own consumption and for sale or barter. It has a quotable commercial value with the traders. The